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CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.   (Currently amended) A video controller for interfacing a frame buffer to a dual scan display having adjacent first and second display portions with a display boundary therebetween, the video controller comprising:

a raster engine that receives video data from the frame buffer, formats the video data, and renders the formatted data to the dual scan display line by line; and

a hardware cursor that selectively overlays a cursor image across the display boundary onto the first and second display portions, the hardware cursor comprises a cursor line buffer that overlays a first portion of the cursor image into a first data path of the raster engine according to a comparison of a first vertical counter value with a first cursor start address and a comparison of a horizontal counter value in the raster engine with a cursor column start value and a cursor image width value in the hardware cursor.

2.   (Currently amended) The video controller of claim 1, the raster engine comprises the first data path and a second data paths path, the first and second data paths respectively associated with the first and second display portions, and the hardware cursor overlays [[a]] the first portion of the cursor image onto the first display portion and overlays a second portion of the cursor image onto the second display portion if the cursor crosses the display boundary.

3.   (Currently amended) The video controller of claim 2, the hardware cursor selectively inserts first portion cursor data associated with the first portion of the cursor image into the first data path of the raster engine[[,]] and selectively inserts second portion cursor data associated with the second portion of the cursor image into the second data path of the raster engine if the cursor crosses the display boundary.

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4.   (Currently amended) The video controller of claim 3, wherein the raster engine comprises a vertical counter with the first vertical counter value and a [[and]] second vertical counter ~~values~~ value, the first and second vertical counter values respectively ~~indicating~~ indicate first and second lines of formatted data ~~being~~ rendered to the first and second display portions, and a horizontal counter with a horizontal counter value ~~indicating~~ that indicates the column of formatted data being rendered to the display;

wherein the hardware cursor comprises a first cursor start address register with [[a]] the first cursor start address ~~indicating~~ that indicates a first cursor portion starting line in the first display portion, a second cursor start address register with a second cursor start address ~~indicating~~ that indicates a second cursor portion starting line in the second display portion, a first cursor portion height register with a first cursor portion height value ~~indicating~~ that indicates a first cursor portion height, a second cursor portion height register with a second cursor portion height value ~~indicating~~ that indicates a second cursor portion height, a cursor column register with a cursor column start value, and a cursor image width register with a cursor image width value ~~indicating~~ that indicates a cursor image width;

wherein the hardware cursor comprises a cursor state machine that compares the first vertical counter value with the first cursor start address and the first cursor portion height value, compares the second vertical counter value with the second cursor start address and the second cursor portion height value, and compares the horizontal counter value with the cursor column start value and the cursor image width value; and

wherein the ~~hardware cursor comprises a~~ cursor line buffer ~~that~~ selectively inserts first portion cursor data associated with the first portion of the cursor image into the first data path of the raster engine according to the comparison of the first vertical counter value with the first cursor start address and the first cursor portion height value and the comparison of the horizontal counter value with the cursor column start value and the cursor image width value, and selectively inserts second portion cursor data associated with the second portion of the cursor image into the second data path of the raster engine according to the comparison of the second vertical counter value with the second cursor start address and the second cursor portion height value and the comparison of the

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horizontal counter value with the cursor column start value and the cursor image width value, if the cursor crosses the display boundary.

5.   (Currently amended) A method of overlaying a cursor image onto a dual scan display in a video controller for interfacing a frame buffer to a dual scan display having adjacent first and second display portions with a display boundary therebetween, the method comprising:

rendering video data from the frame buffer to the dual scan display using a raster engine; [[and]]

selectively overlaying a cursor image across the display boundary onto the first and second display portions according to a cursor position using a hardware cursor; overlaying the cursor image across the display boundary comprises determining first and second portions of the cursor image when the cursor image crosses the display boundary, comprising:

comparing a first vertical counter value in the raster engine with a first cursor start address and a first cursor portion height value in the hardware cursor; and

comparing a horizontal counter value in the raster engine with a cursor column start value and a cursor image width value in the hardware cursor.

6.   (Original) The method of claim 5, further comprising determining whether the cursor image crosses the display boundary according to the cursor position.

7.   (Currently amended) The method of claim 6, further comprising:

determining first and second portions of the cursor image if the cursor image crosses the display boundary;

overlaying the first portion of the cursor image onto the first display portion [[if]] when the cursor crosses the display boundary; and

overlaying the second portion of the cursor image onto the second display portion [[if]] when the cursor crosses the display boundary.

8.   (Cancelled).

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9.   (Currently amended) The method of claim [[8]] 7, wherein determining the second portion of the cursor image comprises:

        comparing a second vertical counter value in the raster engine with a second cursor start address and a second cursor portion height value in the hardware cursor; and

        comparing the horizontal counter value in the raster engine with the cursor column start value and the cursor image width value in the hardware cursor.

10.   (Original) The method of claim 9, wherein overlaying the first portion of the cursor image onto the first display portion comprises selectively inserting first portion cursor data associated with the first portion of the cursor image into a first data path of the raster engine according to the comparison of the first vertical counter value with the first cursor start address and the first cursor portion height value and the comparison of the horizontal counter value with the cursor column start value and the cursor image width value.

11.   (Currently amended) The method of claim [[8]] 5, wherein overlaying the first portion of the cursor image onto the first display portion comprises selectively inserting first portion cursor data associated with the first portion of the cursor image into a first data path of the raster engine according to the comparison of the first vertical counter value with the first cursor start address and the first cursor portion height value and the comparison of the horizontal counter value with the cursor column start value and the cursor image width value.

12.   (Currently amended) The method of claim [[9]] 11, wherein overlaying the second portion of the cursor image onto the second display portion comprises selectively inserting second portion cursor data associated with the second portion of the cursor image into a second data path of the raster engine according to the comparison of the second vertical counter value with the second cursor start address and the second cursor portion height value and the comparison of the horizontal counter value with the cursor column start value and the cursor image width value.

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13.   (Currently amended) The method of claim [[10]] 5, wherein overlaying the second portion of the cursor image onto the second display portion comprises selectively inserting second portion cursor data associated with the second portion of the cursor image into a second data path of the raster engine according to the comparison of the second vertical counter value with the second cursor start address and the second cursor portion height value and the comparison of the horizontal counter value with the cursor column start value and the cursor image width value.

14.   (Cancelled).

15.   (Cancelled).

16.   (Currently amended) The method of claim [[15]] 5, wherein determining the second portion of the cursor image comprises:

comparing a second vertical counter value in the raster engine with a second cursor start address and a second cursor portion height value in the hardware cursor; and

comparing the horizontal counter value in the raster engine with the cursor column start value and the cursor image width value in the hardware cursor.

17.   (Currently amended) The method of claim 16, wherein overlaying the first portion of the cursor image onto the first display portion comprises further comprising selectively inserting first portion cursor data associated with the first portion of the cursor image into a first data path of the raster engine according to the comparison of the first vertical counter value with the first cursor start address and the first cursor portion height value and the comparison of the horizontal counter value with the cursor column start value and the cursor image width value.

18.   (Cancelled).

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19.   (Currently amended) The method of claim 16, ~~wherein overlaying the second portion of the cursor image onto the second display portion comprises~~ further comprising selectively inserting second portion cursor data associated with the second portion of the cursor image into a second data path of the raster engine according to the comparison of the second vertical counter value with the second cursor start address and the second cursor portion height value and the comparison of the horizontal counter value with the cursor column start value and the cursor image width value.

20.   (Cancelled).

21.   (Currently amended) A hardware cursor for overlaying a cursor image onto a dual scan display having adjacent first and second display portions with a display boundary therebetween, comprising:

         means for receiving video data and displaying the video data on the dual scan display; [[and]]

         means for concurrently overlaying a cursor image generated *via* the hardware cursor onto the first and second display portions according to a cursor position: and

         means for determining a first portion of the cursor image when the cursor image crosses the display boundary, comprising:

                  means for comparing a first vertical counter value in the raster engine with a first cursor start address and a first cursor portion height value in the hardware cursor; and

                  means for comparing a horizontal counter value in the raster engine with a cursor column start value and a cursor image width value in the hardware cursor.

22.   (Original) The hardware cursor of claim 21, further comprising means for determining whether the cursor image crosses the display boundary according to the cursor position.

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23.   (Currently amended) The hardware cursor of claim 21, further comprising:

means for determining first and second portions of the cursor image [[if]] when the cursor image crosses the display boundary;

means for overlaying the first portion of the cursor image onto the first display portion [[if]] when the cursor crosses the display boundary; and

means for overlaying the second portion of the cursor image onto the second display portion [[if]] when the cursor crosses the display boundary.

24.   (Cancelled).

25.   (Currently amended) The hardware cursor of claim [[24]] 23, wherein the means for determining the second portion of the cursor image comprises:

means for comparing a second vertical counter value in the raster engine with a second cursor start address and a second cursor portion height value in the hardware cursor; and

means for comparing the horizontal counter value in the raster engine with the cursor column start value and the cursor image width value in the hardware cursor.

26.   (Original) The hardware cursor of claim 25, wherein the means for overlaying the first portion of the cursor image onto the first display portion comprises means for selectively inserting first portion cursor data associated with the first portion of the cursor image into a first data path of the raster engine according to the comparison of the first vertical counter value with the first cursor start address and the first cursor portion height value and the comparison of the horizontal counter value with the cursor column start value and the cursor image width value.

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27.   (Original) The hardware cursor of claim 26, wherein the means for overlaying the second portion of the cursor image onto the second display portion comprises means for selectively inserting second portion cursor data associated with the second portion of the cursor image into a second data path of the raster engine according to the comparison of the second vertical counter value with the second cursor start address and the second cursor portion height value and the comparison of the horizontal counter value with the cursor column start value and the cursor image width value.

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